

Acknowledgments

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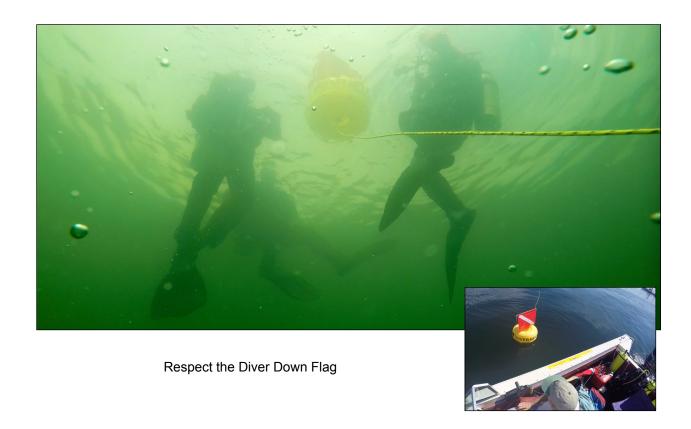
 $\hbox{@}$ 2019 Ann Merriman, Christopher Olson, and Maritime Heritage Minnesota

MHM IS A 501.(c).3 NON-PROFIT CORPORATION DEDICATED TO THE DOCUMENTATION, CONSERVATION, AND PRESERVATION OF MINNESOTA'S FINITE MARITIME CULTURAL RESOURCES

"ACHF grants have allowed a small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM), to re-establish the discipline of underwater archaeology in Minnesota. Without this support, MHM could not have conducted its groundbreaking nautical archeological and maritime historical research."

Introduction

Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial - Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary. excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites - our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statues as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of State v. Bollenbach (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).



Preface

In 2016, during the Minnesota Suburban Lakes Survey Project (MSLS), MHM surveyed Upper and Lower Prior Lake (1,238 acres, Scott County), Lake Pulaski (702 acres, Wright County), Medicine Lake (886 acres, Hennepin County), Lake Johanna (213 acres, Ramsey County), Lake Sylvia (1,524 acres, Wright County), and Lake Elmo (206 acres, Washington County). Other MHM sonar survey and underwater archaeology projects have taken place in Lake Minnetonka, White Bear Lake, Lake Waconia, the Headwaters Mississippi River, and the Minnesota River. In 2017, during the Minnesota Suburban Lakes Nautical Archaeology 1 Project (MSLNA-1), MHM investigated 14 anomalies in Prior Lake, 10 anomalies in Lake Pulaski, and 5 anomalies in Lake Waconia in Carver County in order to answer specific questions about their natures. After the completion of the MSLNA-1 Project fieldwork, there is now 1 identified wreck on the bottom of Lake Waconia, 7 wrecks and 1 object in Lake Pulaski, and 3 wrecks, 3 maritime sites or objects, and 2 'other' site types on the bottom of Prior Lake. The anomalies were identified through underwater archaeological reconnaissance fieldwork using SCUBA, digital video, measured drawings, and maritime historical research. Of these 11 wrecks, 3 of them now have Minnesota archaeological site numbers.

Results of the Minnesota Suburban Lakes Nautical Archaeology 2 Project

Research Design

The purposes of the MSLNA-2 Project was to conduct targeted and comprehensive remote sensing sonar surveys using new and improved sonar equipment; and use underwater archaeological reconnaissance to answer questions about and determine the nature of specific anomalies. The lakes focused on during the project are Prior Lake, Lake Pulaski, Medicine Lake, and Lake Johanna. The targeted sonar scanning undertaken in Prior Lake and the comprehensive scanning undertaken in Lake Pulaski, Medicine Lake, and Lake Johanna greatly assisted MHM during data review; dozens of anomalies were identified as wrecks, objects, or false targets using only their acoustical signatures.

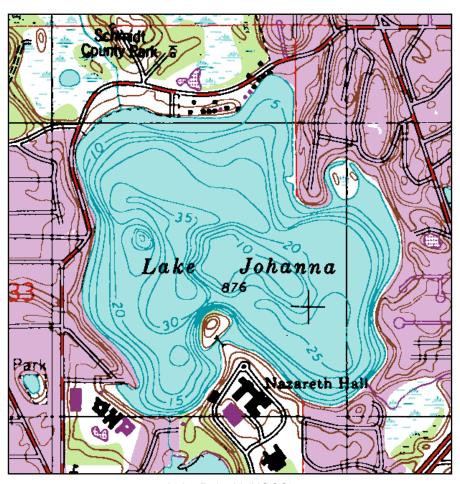
Methodology

The use of improved sonar equipment to record images with increased detail and clarity directly affected underwater archaeological reconnaissance by facilitating efficient dive planning. Specifically, it eliminated the need to dive on dozens of anomalies that turned out to be false targets - unusual bottom contours, rocks, and trees. Further, MHM can identify maritime sites such as docks, boat lifts, dock canopies, and steam boilers to determine if dive reconnaissance on those objects is necessary, depending on their location and other factors. For the MSLNA-2 Project, dozens of anomalies in the 4 lakes were identified as false targets - determined by their acoustical signature and comparisons with previously recorded sonar data - without diving on them. In addition, the new equipment allowed MHM to record detailed acoustical signatures of known wrecks and other sites to further our knowledge about them; this ability is particularly useful in low visibility waters. Using data accumulated from the fieldwork as a starting point, MHM conducted research to place newly recognized nautical archaeological sites

and anomalies into their historical contexts. Minnesota Archaeological Site Forms were filed with the OSA when appropriate.

Results

After the completion of the MSLNA-2 Project fieldwork in late October 2018, there are now 9 identified wrecks, 1 maritime site, 3 objects, and 2 possible wrecks in Lake Pulaski; 3 identified wrecks, 1 unidentified wreck, 3 possible wrecks, 5 possible maritime sites, 3 'other' objects, and a series of barrels and poles on the bottom of Medicine Lake; 2 wrecks, 4 maritime sites, 2 'other' objects, and 6 possible wrecks in Lake Johanna; and 3 identified wrecks, 1 unidentified wreck, 5 possible wrecks, 9 maritime sites, and 6 other sites or objects on the bottom of Prior Lake. Some of the sites and objects have not been dove upon yet, but may be investigated using SCUBA in the future. The anomalies were identified through underwater archaeological reconnaissance fieldwork using SCUBA, digital video, measured drawings, improved side and down-imaging sonar, and maritime historical research. Of the 17 identified wrecks in these 4 lakes, 7 of them now have Minnesota archaeological site numbers. During the MSLNA-2 Project specifically – MHM and its volunteers identified 7 new wrecks, 11 new submerged maritime sites, 8 'other' objects, and confirmed the existence of 2 other wrecks using sonar.



Lake Pulaski (USGS)

Lake Johanna Project Results

During the MSLNA-2 Project, MHM's targeted side and down imaging sonar rescanning of Lake Johanna using updated sonar equipment allowed for the identification of a large dock (A22), a sunken ice rink with a goal (A19.1-A19.2), possible cables or power lines (A9, A18.1-A18.2), 15 anomalies as false targets comprised of bottom contours or vegetation (A1-A3, A5-A8, A11-A17, A23), and Anomaly 4 is a rock - without dive reconnaissance. Other anomalies remain unidentified after sonar review including a possible wreck (A20), 2 partially buried objects (A24, A25), and a collection of probable boat mooring sites (A27). In 2018, using the improved sonar data and dive reconnaissance, 2 wrecks (A10, A29), a unique wreck or recreational float (A21), a metal buoy (A26), and a false target bottom contour (A28) were identified.

Corrugated Steel Wreck, 21-RA-83 (Anomaly 10)

The 2016 sonar images of Anomaly 10 indicated it was a wreck and the MSLNA-2 Project survey produced even clearer data of the site. The Corrugated Steel Wreck was identified in mid-October 2018. The hull is fabricated from corrugated steel and the wreck is 12.20 feet long and 3.20 feet in the beam amidships to the transom. The transom is square and the pointed bow has a stempost, and a small triangular metal sheet at gunwale level provides rigidity. The remains of a towing loop is seen on the metal sheet. An extruded steel caprail is attached to the gunwale. Anomaly 10 is siltedin and no seats can be seen or are evident, but the vessel likely had 3 of them at the time of construction. Along the inner starboard side hull where the silt has shifted and a longitudinal steel stringer can be seen near the turn of the bilge; the port side stringer can be seen at the bow. Further, steel frames are attached to the stringer and the inner hull on the starboard side, with futtocks visible on the port side through the silt. The hull is damaged on the port side amidships and small holes through the wreck can be seen on the port side bow. Speckles of white paint can be seen throughout the wreck, but it is particularly evident Also near the port bow near the silt line, white paint survives. There is no evidence that the boat ever had a Minnesota registration number, indicating she sank prior to July 1, 1959. MHM contends Anomaly 10 is a Minnesota-built boat and

likely a home-build because she is made of corrugated metal. However, the Corrugated Steel Wreck may have been produced by one of the Minneapolis firms that include the Minneapolis Steel Boat Company, O'Hara's Boat Company, and Sanderson's Boat and Engine Company (Minneapolis Journal 1905; Minneapolis Tribune

1904). Anomaly 10 is the first wreck of this type MHM has identified on the bottom of a Minnesota lake or river. Because of the wreck's construction and probable home-built nature, MHM contends the boat was constructed in the 1910s and -based on the significant amount of silt within the hull - sank in the 1930s. MHM submitted an archaeological site form for the wreck to the OSA in late December 2018 and received her site number, 21-RA-83, at that time.



2016







THE O'HARA STEEL BOAT O'Hara Bros. Boat Co.

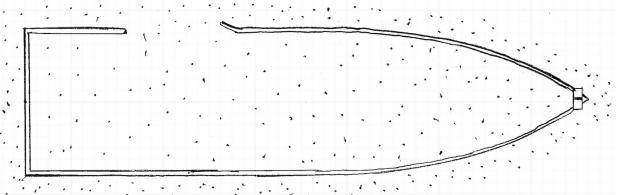
A corrugated boat as art (pinterest.com).



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A sketch of the Corrugated Steel Wreck (Christopher Olson).





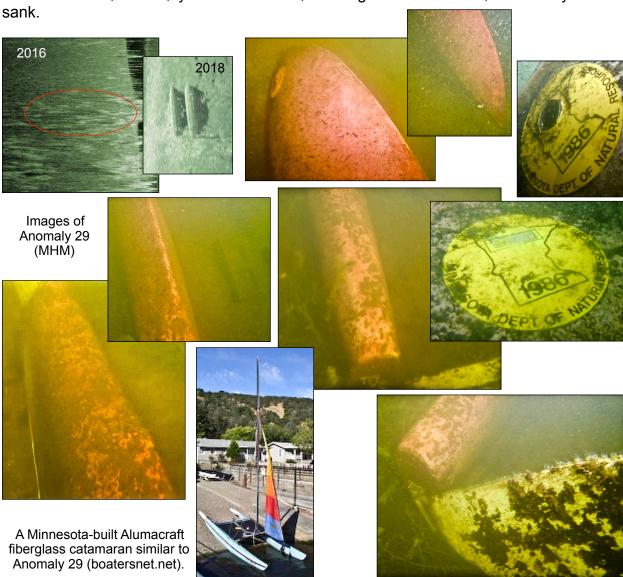


An American example of a corrugated boat (flickr.com).

An early 20th Century Australian corrugated boat (wordpress.com).

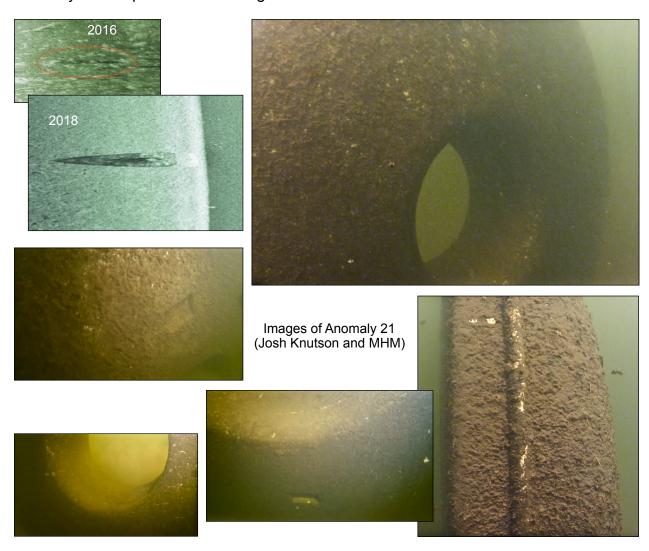
Capsized Fiberglass Catamaran Wreck (Anomaly 29)

MHM's 2016 sonar footage did not produce an image of Anomaly 29 that was recognizable. New sonar images recorded during the MSLNA-2 Project indicated to MHM that Anomaly 29 was a capsized pontoon boat. However, MHM identified the wreck as a Capsized Fiberglass Catamaran Wreck in mid-October 2018. The wreck is 12.80 feet long and 5.70 feet in the beam amidships, and the hulls are molded from fiberglass. Anomaly 29's hulls have pointed bows, similar to canoes, and the wreck's 2 rudders are attached to the sterns of the double hull, standing up into the water column. The wreck's deck is buried in silt between the hulls but several cement blocks are seen weighing it down. MHM contends whomever abandoned the boat punched holes in the hulls and allowed the weight of the concrete to send it to the bottom. Yellow Minnesota validation stickers that expired in 1986 survive on both port and starboard; the starboard example had a round hole punched through it that destroyed the registration number. The port sticker is intact, but the number could not be discerned at that time. The Capsized Fiberglass Catamaran Wreck is a protected submerged cultural resource that MHM may visit again in the future to answer additional questions that include the wreck's builder, model, year constructed, her registration number, and the year she



Possible Round Wreck or Recreational Float (Anomaly 21)

MHM recorded sonar footage of Anomaly 21 in 2016 and it did have an acoustical shadow, but its location suggested it was a weed clump. Sonar footage recorded in 2018 - while detailed - did not allow MHM to identify the anomaly, although it resembled a pointed wreck suspended in the water column. MHM identified Anomaly 21 as a Possible Round Wreck or a Recreational Float in mid-October 2018. Nicknamed 'The Donut', Anomaly 21 is 7.60 feet wide and could be a type of round boat that different companies have constructed beginning around 1966. Among these builders are Cir Craft, Roundabout Watercraft, and Ultraskiff. Cir Craft boats are complex hollow-hulled vessels; Roundabout and Ultraskiff boats are are simpler platform boats that would be outfitted with trolling motors and pedestal seats. If Anomaly 21 is a round boat, it is an early cut-down version of the type without discernible details that could accommodate a spinning pedestal chair. However, the 'hull' currently has a 1.70-foot diameter hole in the middle that might take a platform for a pedestal chair. Or, the object is a recreational float that would be anchored in the lake and used as a raft for diving and sunbathing. If Anomaly 21 is either of these objects or if it is something else, it is easily transportable to the lake - it could be tipped onto its edge and rolled into the water easily by 1 person and that is one of its biggest selling points. Regardless of its identification or purpose, Anomaly 21 is a protected submerged cultural resource.







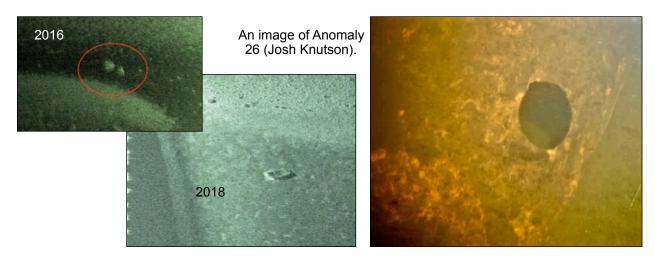




Yellow and red Cir Craft boats and two views of an Ultraskiff boat (showmanagement.com, fiberglassics.com, cabelas.com).

Possible Metal Buoy (Anomaly 26)

In 2016, MHM recorded sonar footage of Anomaly 26 and it appeared to be 2 indistinct blobs. MHM interpreted the 2018 sonar data recorded of Anomaly 26 as a small wreck. However, the object is a 4.40-foot long by 3.30-foot diameter hollow metal tube with 1 flat and 1 pointed end. The round end has a hole in the middle with a triangle around it that may be seams where pieces of metal are connected. The pointed end may be hollow or solid - it cannot be known at this time - and the cylindrical body in the middle has a rectangular section cut out of it. After documenting the anomaly, MHM surmised it is an old buoy that was discarded long ago. This supposition could be correct if the rectangular cut-out occurred after the buoy had served its purpose; it would not float with the cut-out present. Anomaly 26 may have had a different function and the shape also suggests a small farm silo that would have been held up by supports. Regardless of its identification or purpose, the Possible Metal Buoy is a protected submerged cultural resource.



Possible Wreck (Anomaly 20)

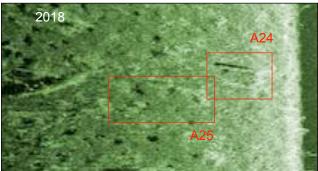
MHM recorded a sonar image of Anomaly 20 in 2016 that appeared to be a curved tree near the weed line. In 2018, Anomaly 20 appears to be a partially buried wreck approximately 20 feet long, and will require SCUBA reconnaissance to identify it in the near future.

2016

Possible Wrecks (Anomalies 24, 25)

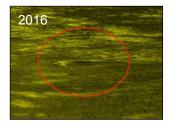
The 2016 sonar footage of the area where Anomalies 24 and 25 are located is littered with indistinct shapes and vegetation. In 2018, an image with increased clarity indicates 2 objects may be partially buried wrecks. Anomaly 24 is approximately 12.00 feet long and Anomaly 25 about 10.00 fee long. These objects will require SCUBA reconnaissance to identify them in the near future.

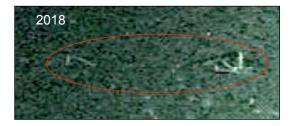




Possible Wreck (Anomaly 30)

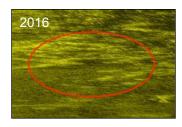
The 2016 sonar data of the area where Anomaly 30 is located is filled with vegetation and shapes, but the anomaly has one distinct area that cannot be identified. In 2018, an image with increased clarity suggests that is a partially buried wreck that may have an engine or motor protruding from the silt. Anomaly 30 is approximately 17.00 feet long and will require SCUBA reconnaissance to identify it in the near future.





Possible Wreck or Float (Anomaly 27)

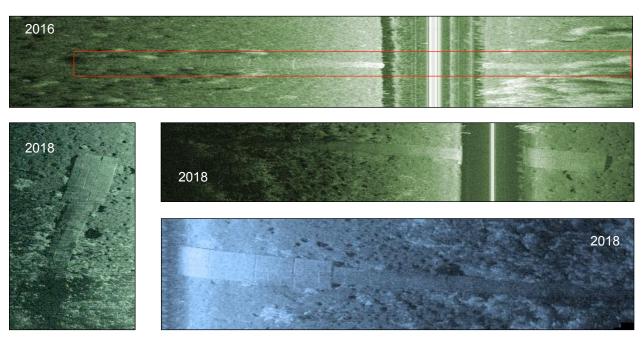
In 2016, a sonar image of Anomaly 27 footage of the area where Anomalies 24 and 25 are located is littered with indistinct shapes and vegetation. During the MSLNA-2 Project, the anomaly is distinct and suggests two pontoons, possibly an overturned pontoon boat wreck or a pontoon float. Anomaly 27 is approximately 12.00 feet long and will require SCUBA reconnaissance to identify it in the near future.





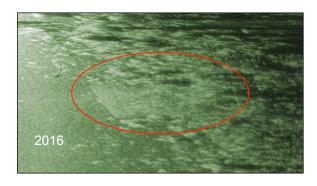
Big Dock (Anomaly 22)

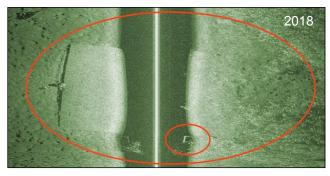
In 2016, a sonar image of Anomaly 22 was recorded but it was fuzzy and MHM interpreted the data as a glitch in the footage. Glitches occur during surveys when the electrical signal between the sonar transducer and the recording head is interrupted and the footage is slightly distorted. Anomaly 22 resembled one of these glitches. In 2018, the improved sonar provided great clarity to the object and details of a large dock were recorded. It is over 100 feet long and is wider at its end, culminating in a thick 'T' shape. The dock appears to have simply collapsed into the lake where it had once stood. MHM may chose to investigate the Big Dock using SCUBA in the future to answer archaeological questions.



Ice Rink and Hockey Goal (Anomalies 19.1-19.2)

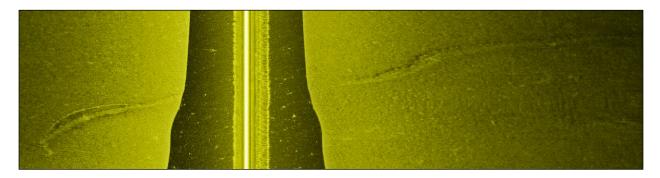
In 2016, a sonar image of Anomalies 19.1 and 19.2 was recorded but they were unidentifiable. In 2018, MHM's survey boat passed directly over the top of A19.1, 'cutting it in-half', and the sonar recorded a detailed image. MHM contends Anomalies 19.1-19.2 are a large Ice Rink - probably a large tarp - and Hockey Goal that were not removed from the ice soon enough one year and sank to the bottom after ice-out. MHM may chose to investigate Anomalies 19.1-19.2 using SCUBA in the future to answer archaeological - and maybe ecological - questions.





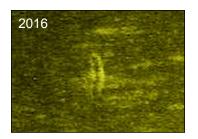
Cable or Wire (Anomaly 18)

In 2016, a sonar image of Anomaly 18 was tentatively identified as a fallen poke net. However, MHM now contends it is a cable or wire for electricity or phone service, a common anomaly in Minnesota lakes. Anomaly 18 will not be investigated using SCUBA.



Possible Cable or Tree (Anomaly 9)

In 2016, the sonar signature of Anomaly 9 was unidentified but it slightly resembled a wreck. The 2018 image of the anomaly suggests it is part of a cable or possibly a tree. SCUBA reconnaissance would be required to positively identify Anomaly 9.





Conclusion

MHM identified the only 2 recognized wrecks on the bottom of Lake Johanna during the MSLNA-2 Project - the Corrugated Steel Wreck (21-RA-83) and the Capsized Fiberglass Catamaran Wreck (Anomaly 29). MHM's targeted re-scanning of Lake Johanna using improved down and side-imaging sonar during the MSLNA-2 Project produced significantly more detailed data. Additional fieldwork will be required to determine the nature of 6 possible wrecks (Anomalies 20, 24, 25, 27, 30, 31), and further historical research into the probable identification the Possible Round Wreck or Recreational Float (Anomaly 21) and the Metal Buoy (Anomaly 26). While the identification of the Big Dock (Anomaly 22) is not in question, MHM may conduct dive reconnaissance on the site if future historical research suggests additional information can be attained through fieldwork. MHM has not located photographs of a large dock on Lake Johanna, either through historical imagery nor through aerial photography. The Ice Rink and Goal (Anomaly 19.1-19.2) appear to be exactly what MHM has determined they are, but the substance that comprises the ice rink is unknown. MHM suggests it is a large plastic tarp or tarps, information discernible only with SCUBA reconnaissance.

Beyond any archaeological implications of the presence of a large tarp on the bottom of a somewhat small lake - it could be covering archaeological resources that cannot be identified while it lies on the bottom - ecological concerns may be of interest to the Minnesota DNR. The investigation of the 6 possible wrecks and information gathering on identified anomalies will be part of a research plan during future archaeological fieldwork. Lastly, of the 31 anomalies labeled with a number during sonar review, 17 of them are false targets - and 1 rock - based on the comparison to data recorded in 2016 and 2018. The use of the more advanced gear has shaved off 1 or 2 years of Phase 1 underwater archaeological reconnaissance using SCUBA.

The unknown anomalies may be the physical remains of Minnesota's maritime material culture that represent significant waterborne or sports activities such as ice fishing or transportation. A variety of maritime resources are expected to be found on the bottom of Minnesota's lakes because of their use as shoreline infrastructure that are often susceptible to high winds, such as boat lifts, canopies, dock sections, and entire docks. As a whole, the MSLNA-2 Project produced interesting and significant results investigating 14 anomalies in 4 lakes in 4 counties using SCUBA. MHM dove upon and identified 7 wrecks, recognized an additional 2 wrecks in sonar data that will be targeted during future research, 14 possible wrecks, 11 maritime sites or objects, and 8 'other' objects in Prior Lake, Lake Pulaski, Medicine Lake, and Lake Johanna. Of the 7 wrecks, MHM acquired Minnesota Archaeological Site Numbers for 5 of them: 1 in Lake Pulaski, 3 in Medicine Lake, 1 in Lake Johanna. The wrecks in Medicine Lake and Lake Johanna are the first underwater archaeological sites identified in these lakes.

The wrecking processes responsible for the creation of Minnesota's submerged cultural resources have produced a variety of underwater sites. Identifying, comparing, and associating these new sites in Lake Johanna, Medicine Lake, Lake Pulaski, and Prior Lake with known sites increases our understanding of the historical context within which these cultural resources operated or were exploited by Minnesotans. Future studies will greatly enhance our shared maritime history through the recognition of submerged cultural resources and the stories behind their construction and disposition. The diversity of nautical, maritime, and underwater sites so far identified by MHM in Minnesota's lakes are tangible examples of the rich maritime history of the area. Through research, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Minnesota's submerged cultural resources into the future. MHM continues to re-examine recorded sonar footage from completed remote sensing surveys. Targeted re-scanning has occurred in several lakes using knowledge gained from the comparison of anomalies that have proven to be wrecks or other submerged cultural resources in past projects. With improved technology, future scanning projects will produce clearer data. The results of the MSLNA-2 Project summarized above is connected to all the work that came before and will come after its completion. At this point, watercraft located Minnesota's suburban lakes represent approximately 1,000 years of Minnesota's maritime history and nautical archaeology. In the historic period, the known wrecks represented in these lakes span around 120 years of local maritime culture. It is clear – even through this Phase 1 pre-disturbance nautical archaeological investigation - that the types of sites that exist in Minnesota's suburban lakes documented to date are diverse, archaeologically and historically significant, and worthy of great attention.

References

Marken, M.W., A. Ollendorf, P. Nunnally, and S. Anfinson. 1997. *Beneath Minnesota Waters: Minnesota's Submerged Cultural Resources Preservation Plan.* Summit Envirosolutions, Inc. and Braun Intertec, St. Paul. Report prepared for the State Historic Preservation Office, Minnesota Historical Society: St. Paul, MN.

Minneapolis Journal. 1905, 3 June.

Minneapolis Tribune. 1904, 3 July.